http://www.smcm.edu/cda/shoreline.html

Introduction to Living Shorelines
St. Mary's County
January 16, 2010

Erosion: A Natural Process

- Shorelines are naturally eroded by the movement of water, waves, and wind.

Gwen Shaughnessy

Not all erosion is BAD

Without this…

Gwen Shaughnessy

Not all erosion is BAD

We wouldn't have this…

Town of Ocean City Tourism Office

or this…

Adrian Jones, IAN Image Library

If erosion is NATURAL how can it be a PROBLEM?

MD DNR

When something is at risk for loss (property, critical habitat, etc.)

Protecting Shorelines the "Hard" Way

MD DNR

Rip-rap or Revetment

Wooden Bulkhead

MD DNR

Negative impacts of hardened shorelines

Coastline Consulting, LLC

Natural connections between uplands and wetlands are severed

Negative impacts of hardened shorelines

VA Coastal Zone Management Program

Beaches and marshes gradually disappear in front of structure

Negative impacts of hardened shorelines

MD DNR

MD DNR

C. Croswell (Baltimore Co. DEPRM-2003)

Over-topping effect during storms

Negative impacts of hardened shorelines

MD DNR

Post-storm failed bulkheads contribute solid waste

HB 973 - Water Management Administration

- Requires living shorelines, except where the person can demonstrate to MDE that such measure are not feasible
- MDE required to map areas appropriate for structural stabilization
- Establishes a waiver process

Protecting Shorelines the "Green" Way

It's not really new…

- 1973 VA Tidal Wetlands Guidelines: Plant marshes for erosion control where possible
- 1983 VIMS: Early bio-engineered marsh instead of bulkhead replacement
- 1984 Critical Areas Act passed: Conserve fish, wildlife, and plant habitat in the Critical Area
- 1987 Chesapeake Bay Agreement institutes the Chesapeake Bay Wetlands Policy stating "net resource gain"
- 1994 study completed on over 100 projects using "reliable bioengineering restoration techniques" (Garbisch & Garbisch, 1994)

Living Shorelines: Non-structural Examples

Marsh planting

Kevin Smith

Marsh with Biolog

Chesapeake Bay Foundation

Living Shorelines: Hybrid Examples

Marsh with groin

VIMS, CCRM

Marsh with sill

Bhaskaran Subramanian

Marsh with breakwater

Mike Land

Water Quality Benefits of Living Shorelines

Marshes filter and trap sediments and pollutants (from fertilizers, detergents, pesticides, etc.) in stormwater runoff

=

Living Shorelines Provide Habitat

Marshes are important habitat for many fisheries including BLUE CRAB, STRIPED BASS, and WHITE PERCH

Angel Bolinger, MD DNR

NOAA

Living Shorelines Provide Habitat

Wetlands support 80% of America's breeding bird populations & 400 species of protected migratory birds

USFWS

NRCS

Living Shorelines = Living Connections

Link between aquatic and upland habitats is not broken, providing shoreline access for wildlife and recreation

Kevin T. Edwards, IAN Image Library

MDE

Living Shorelines Reduce Erosion

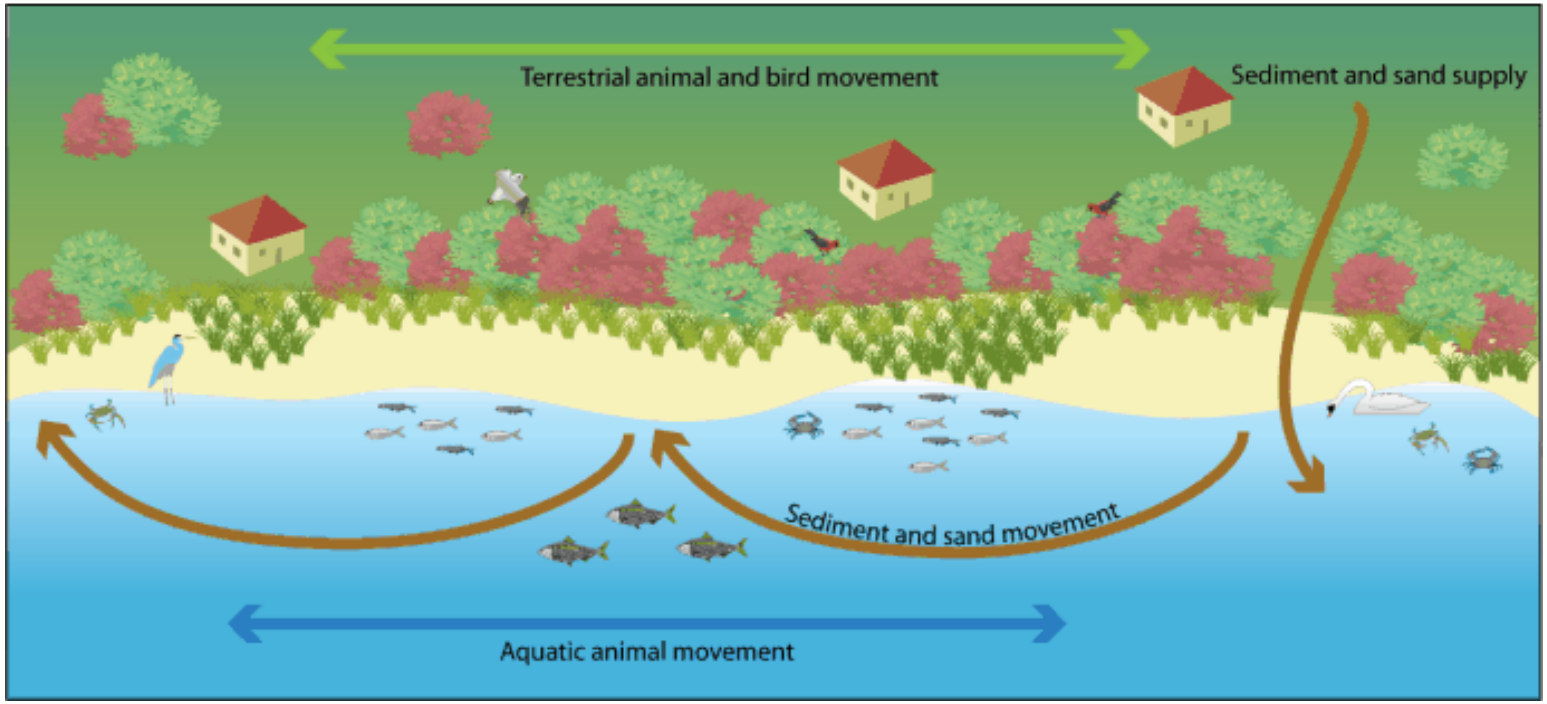
Marsh vegetation absorb wave energy from boat wakes and during storms

www.weather.com

Adrian Jones, IAN Image Library

Living Shorelines Maintain Natural Processes

Marsh plants allow for natural shoreline changes and sand movement



Limitations

Not effective in all situations

Finding a professional with knowledge and expertise in living shorelines

Keys to Success

- Good design
- Knowledgeable contractor
- Awareness
  - LS are not “zero maintenance”
- Property owners’ involvement

Gwen Shaughnessy

Chesapeake & Coastal Program, MD DNR

gshaughnessy@dnr.state.md.us

410.260.8743